

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

ON SEMICONDUCTOR CORP. and)
SEMICONDUCTOR COMPONENTS)
INDUSTRIES, L.L.C.,)

Plaintiffs,)

v.)

SAMSUNG ELECTRONICS CO., LTD.,)
SAMSUNG ELECTRONICS AMERICA,)
INC.,)
SAMSUNG TELECOMMUNICATIONS)
AMERICA GENERAL, L.L.C.,)
SAMSUNG SEMICONDUCTOR, INC., and)
SAMSUNG AUSTIN SEMICONDUCTOR)
L.L.C.,)

Defendants.)

C.A. No. 07-449 (JJF)

SAMSUNG ELECTRONICS CO., LTD.,)
SAMSUNG ELECTRONICS AMERICA, INC.,)
SAMSUNG TELECOMMUNICATIONS)
AMERICA GENERAL, L.L.C.,)
SAMSUNG SEMICONDUCTOR, INC., and)
SAMSUNG AUSTIN SEMICONDUCTOR L.L.C.,)

Plaintiffs,)

v.)

ON SEMICONDUCTOR CORP. and)
SEMICONDUCTOR COMPONENTS)
INDUSTRIES, L.L.C.,)

Defendants.)

C.A. No. 06-720 (JJF)

ON SEMICONDUCTOR'S ANSWERING CLAIM CONSTRUCTION BRIEF

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INTRODUCTION

In its Opening Brief, Samsung¹ commits three consistent errors: (1) rewriting individual claim limitations to include other portions of the claim; (2) reading limitations into the claims from the specification; and (3) using extrinsic evidence to improperly vary the scope and meaning of the claims in violation of the mandate of *Phillips v. AWH Corp.*, 415 F.3d 1303, 1315-25 (Fed. Cir. 2005) (*en banc*). In contrast, ON Semiconductor's² analysis follows the tenets of claim construction set forth in *Phillips* to reach the proper constructions. ON Semiconductor's constructions should be adopted.

ARGUMENT

I. U.S. PATENT NO. 5,361,001: DISPUTED CLAIM TERMS

A. “Analog Trimming”

1. This Term from the Preamble Is Not a Claim Limitation
and Does Not Require Construction.

It is well established that a preamble to a claim will not be considered a limitation unless it recites essential structures or steps, or is “necessary to give life, meaning, and vitality” to the claim. *Catalina Mktg. Int’l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002) (quoting *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305 (Fed. Cir. 1999)). Neither requirement is met here. The body of Claim 4 of the '001 patent³ defines a

¹ “Samsung” refers collectively to Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., Samsung Telecommunications America General, L.L.C., Samsung Semiconductor, Inc., and Samsung Austin Semiconductor, L.L.C.

² “ON Semiconductor” refers collectively to ON Semiconductor Corp. and Semiconductor Components Industries, L.L.C.

³ “The '001 patent” refers to U.S. Patent No. 5,361,001.

structurally complete invention and the preamble, far from being necessary to give life, meaning and vitality to the claim, only states the purpose or intended use of the invention. [See D.I. 96 at 6.]⁴

Samsung's reliance upon the specification and, in particular, the title of the invention to support its argument that "analog trimming" is a limitation of the claim is misplaced. As the Federal Circuit has made clear, "the purpose of the title is not to demarcate the precise boundaries of the claimed invention but rather to provide a useful reference tool for future classification purposes." *Pitney Bowes*, 182 F.3d at 1312. "If we do not read limitations into the claims from the specification that are not found in the claims themselves, then we certainly will not read limitations into the claims from the patent title." *Id.* Similarly, Samsung's reliance on a passage from the introduction to the Field of the Invention also does not overcome the presumption that a preamble term is not a limitation. *Symantec Corp., v. Computer Assocs. Int'l, Inc.*, No. 2007-1201, 2008 U.S. App. LEXIS 7826, at *14 (Fed. Cir. Apr. 11, 2008) ("[I]t is assumed that the preamble language is duplicative of the language found in the body of the claims or merely provides context for the claims, absent any indication to the contrary in the claims, the specification or the prosecution history."). All that the cited passage does is provide an introduction to the discussion of the invention, but without more, Samsung has not presented sufficient evidence to overcome the presumption that the preamble is not limiting.

Far from being the "*raison d'être*" of the claimed method, as Samsung argues, [D.I. 94 at 15], the phrase "analog trimming" merely provides a circumstance for which the

⁴ Docket references are to Civil Action No. 07-449.

method may be used. [D.I. 94 at 15 (citing *Boehringer Ingelheim Vetmedica, Inc. v. Schering-Plough Corp.*, 320 F.3d 1339, 1345 (Fed. Cir. 2003).] For example, as fully recited in the body of the claim, the claimed method also may be useful in making adjustments to analog variables in manufacturing processes such as resistance, capacitance, voltage references, frequency references, and ratio elements. [D.I. 97, Ex. 1 at col. 1:12-20.] Because the preamble phrase “analog trimming” merely provides an intended use of the claimed method (the full scope of which is set forth in the body of the claim), it is not a claim limitation. *Symantec*, 2008 U.S. App. LEXIS 7826, at *11 (“A preamble is not limiting [] ‘where a patentee . . . uses the preamble only to state a purpose or intended use for the invention.’”) (quoting *Pitney Bowes*, 182 F.3d at 1305).

2. If This Term Requires Construction, It Should Be Construed to Mean “Modifying an Analog Value or Quantity.”

If the Court nonetheless were to find that “analog trimming” is a limitation, Samsung’s attempt to include an additional requirement of making a “***fine***” adjustment must be rejected. [D.I. 94 at 14.] In contrast with ON Semiconductor’s approach, Samsung follows the rejected principles of *Texas Digital Systems, Inc. v. Telegenix, Inc.*, 308 F.3d 1193 (Fed. Cir. 2002), and immediately resorts to extrinsic evidence without considering its consistency with the intrinsic evidence. *Phillips*, 415 F.3d at 1320-21. [See D.I. 96 at 7-8.] Specifically, Samsung relies on a dictionary definition for “trimming” that recites “***fine*** adjustments,” [see D.I. 94 at 14],⁵ despite the disclosure in the specification of “trimming” as a decidedly non-fine adjustment of 10 to 2660 ohms, i.e., a difference of two orders of magnitude. [D.I. 97, Ex. 1 at col. 1:36-

⁵ Emphasis in quoted material is added unless otherwise noted.

38.] The portions of the specification that Samsung cites also do not support its position because they do not recite “fine adjustments” but rather “adjustments” generally. [D.I. 94 at 14.] Samsung’s repeated reliance on cherry-picked references that contradict the teachings of the specification is improper. *See Phillips*, 415 F.3d at 1315-25.

Samsung also improperly tries to limit “analog” values to only capacitance, inductance, or resistance, notwithstanding that the specification teaches other analog values, including voltage references, frequency references, and ratio elements. [D.I. 97, Ex. 1 at col. 1:12-20.] In the face of clear intrinsic evidence to the contrary, Samsung offers extrinsic evidence from two dictionaries with definitions for “trim” and “trimming” that are limited to adjustment of resistance, capacitance, and inductance. Another dictionary on which Samsung relies, *The Illustrated Dictionary of Electronics*, defines “trim” as encompassing parameters such as “tuning control, balance control, output adjustment, or the like.” [D.I. 94 at 14.] This definition is consistent with the specification because “output adjustment” is similar to transistor gain control (i.e., adjusting the output of a transistor), as described in the ’001 patent [D.I. 97, Ex. 1 at col. 1:13-16] but is not consistent with Samsung’s proposal because it is not limited to just capacitance, inductance, or resistance. By using the phrase “or the like,” this definition further acknowledges that trimming is not limited to the recited parameters. [D.I. 94 at 14.] Thus, not only is Samsung’s construction inconsistent with the intrinsic evidence, but even the extrinsic evidence on which Samsung relies contradicts Samsung’s narrow interpretation.

B. “Control Signal”

Rather than construe “control signal,” Samsung seeks to rewrite the claim by including other claim limitations in its definition. Specifically, Samsung’s proposed construction incorporates limitations that are found *verbatim* elsewhere in the claim (e.g., “a signal that

enables or disables conduction through an associated passive element”). This limitation, which relates to a different claim term, has nothing to do with an understanding of the term “control signal.” The Court should not rewrite the claim by giving a claim term a definition that bears no relation to the term at issue. *See, e.g., Ortho-McNeil Pharm., Inc. v. Mylan Labs., Inc.*, No. 2007-1223, 2008 U.S. App. LEXIS 6786, at *8 (Fed. Cir. Mar. 31, 2008) (“[C]ourts may not redraft claims”); *Chef America, Inc. v. Lamb-Weston, Inc.*, 358 F.3d 1371, 1375 (Fed. Cir. 2004) (“[W]e have repeatedly declined to rewrite unambiguous patent claim language”).

Samsung’s citation to the specification does not compel a different result and, in fact, supports ON Semiconductor’s construction. The portions of the specification to which Samsung cites describe how a “control signal” is applied to a transistor to control its operation. [D.I. 94 at 16.] This example supports ON Semiconductor’s construction because the “control signal” in question is “regulat[ing] and guid[ing]” the operation of the transistor but is inconsistent with Samsung’s construction because the control signal is not “enable[ing] or disable[ing] conduction through an associated passive element.” [*Id.*] These passages do not suggest that the inventor acted as his own lexicographer to narrowly define “control signal” to include the added limitation that Samsung advocates.

C. “Fixed Value”

Samsung begins its argument on “fixed value,” not according to the methodology mandated by *Phillips*, but instead with a discussion of terms and concepts not found in the claims. [D.I. 94 at 17-18.] To justify its extremely narrow construction for this straightforward term, Samsung introduces the concepts of a “previewing step” and “temporarily specifying trims.” The terms “fixed” and “value,” as well as the composite term “fixed value,” however,

are readily understood by those skilled in the art. Nothing about them requires a “previewing step” or a “temporary trim,” as Samsung urges.

Samsung’s analysis also defies logic: that the inventor gave a particular example of a “fixed value” being set by blowing a fuse does not limit the general definition of the term, just as presenting a zebra as a particular example of an animal does not mean that all animals are zebras. While some “fixed values” may be permanent, all do not have to be.

D. “Setting Said Control Signal to a Fixed Value”

Samsung does not separately address this term, instead acknowledging that it needs no further construction after “control signal” and “fixed value” are separately addressed. [D.I. 94 at 16-19.] The Court need not address this larger phrase separately as it is not in dispute.

II. U.S. PATENT NO. 5,563,594: DISPUTED CLAIM TERMS

A. “A Register Having an Input Coupled for Receiving Parallel Input Data and Having an Output”

Samsung asks the Court to construe this larger phrase, yet it only addresses its constituent phrases.⁶ As to the phrase “parallel input data,” Samsung presents various definitions from extrinsic references that lead it to acknowledge that “parallel input data” is “the simultaneous input of data.” [D.I. 94 at 22.] This understanding is consistent with the intrinsic evidence.

Unable to avoid infringement with this definition, however, Samsung seeks to add limitations to it, such as “over several input lines,” among others. Importantly, Samsung points

⁶ Samsung also separately addressed the term “coupled” but does not incorporate it in the construction of this phrase.

to no intrinsic or extrinsic evidence to support such a construction. [*See id.* at 21-22.] As a result, it should be rejected.

Samsung's proposed construction is further flawed because it does not address the term "and having an output," and Samsung likewise ignores this term in its brief. [*Id.*] It is equally improper to read out limitations as it is to read them in. *See, e.g., BBA Nonwovens Simpsonville, Inc. v. Superior Nonwovens, LLC*, 303 F.3d 1332, 1344 (Fed. Cir. 2002) ("Because [accused infringer's] construction reads a limitation out of the claims, we decline Superior's invitation.").

B. "A Multiplexer Having an Input Coupled to Said Output of Said Register for Providing Serial Data"

Here again, Samsung requests that the larger phrase be construed but only addresses its constituent phrases. As to the term "multiplexer," Samsung repeats the rejected approach of *Texas Digital* by citing to dictionaries that are inconsistent with the specification. *Phillips*, 415 F.3d at 1320-21. Those dictionaries, which relate only to parallel-to-serial devices, overlook the fact that the '594 patent⁷ describes "multiplexers" as both parallel-to-serial and serial-to-parallel devices. [D.I. 97, Ex. 14 at col. 1:10-15, 2:7-9, 5:30-33.] As a result, Samsung's construction should be rejected.

Samsung also takes issue with the term "serial data," which is readily understood by one of ordinary skill in the art. Although Samsung's proposed construction is overly narrow, to reduce the issues for the Court, ON Semiconductor agrees to the following construction for "serial data": "data that is transmitted sequentially." [*Cf.* D.I. 94 at 23.] This construction is consistent with the intrinsic evidence and does not include unnecessary limitations.

⁷ "The '594 patent" refers to U.S. Patent No. 5,563,594.

With an understanding of the constituent terms, nothing further is needed to understand the larger phrase Samsung identifies, and there is neither the need nor support for rewriting the phrase as Samsung proposes. *Chef America*, 358 F.3d at 1375 (“[W]e have repeatedly declined to rewrite unambiguous patent claim language . . .”).

C. “Coupled”

Samsung wrongly relies on a passage from the specification describing a possible use of “coupled” as a direct connection to argue that the inventors had somehow redefined “coupled” to only mean a direct connection. Samsung fails to acknowledge that this *example* does not *define* all couplings as direct connections: a description of a particular is not a definition of the general. Those skilled in the art understand “coupled” to refer to direct or indirect connections. That understanding is consistent with the discussion in the ’594 patent, [see D.I. 96 at 24], and nothing in the patent clearly suggests that the inventors intended to depart from this commonly understood meaning. See *Sinorgchem Co., v. U.S. Int’l Trade Comm’n*, 511 F.3d 1132, 1136 (Fed. Cir. 2007) (requiring “claim drafters who choose to act as their own lexicographers *to clearly define terms* used in the claims in the specification.”); *In re Translogic Tech.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007) (“[T]he term ‘coupled to receive’ . . . does not specify a particular connection . . . [t]herefore, the Court agrees with the Board’s construction that ‘coupled to receive’ means ‘capable of receiving.’”).

D. “Comparator”

The dispute here is basically whether a “comparator” can have only two inputs as advocated by Samsung or can have more as proposed by ON Semiconductor. To reach its construction, Samsung follows the rejected approach of *Texas Digital* yet again, citing dictionary definitions that limit “comparators” to only two inputs. [D.I. 94 at 26-27]. The specification,

however, discloses a comparator with *six* inputs. [See D.I. 96 at 33 (explaining '594 patent at col. 4:1-4).] Despite acknowledging that the specification teaches “comparator 28 illustrated in Fig. 2 . . . receives two 3-input data signals,” [D.I. 94 at 27], Samsung fails to recognize that a device comparing “two 3-input data signals” is actually comparing *six* input data signals. Consistent with the specification, the literature in the art reveals that many comparators have more than two inputs. [D.I. 96 at 33.] Accordingly, Samsung’s attempt to limit “comparator” to only two inputs is improper and ON Semiconductor’s construction, which permits multiple inputs as disclosed in the specification, should be adopted.

E. “Control Signal”

Samsung purports to “begin with the words of the claims,” but quickly goes astray when it attempts to bring in limitations from other parts of the claims, rather than just addressing the disputed term “control signal.” [D.I. 94 at 28.] To the extent other limitations are present in the claim, such as the term “transfer data signal,” they are to be considered as part of their respective claim term, but they should not be used to rewrite the plain and ordinary meaning of “control signal.” See, e.g., *Ortho-McNeil*, 2008 U.S. App. LEXIS 6786, at *8; *Chef America*, 358 F.3d at 1375. After the disputed term is properly construed, the larger phrase make sense without further construction.

Beyond that, Samsung goes even further astray by reading in limitations about the “phase” of the transfer data signal despite that the claims say nothing about “phase.” [See D.I. 97, Ex. 14 at col. 6:39-10:51.] Although Samsung refers to a particular passage and figures from the specification, it never explains why “phase” should be read into the claims. Its pinnacle statement that “[i]ndeed, there is no other function for the ‘Octant’ and ‘Octant Select’ control signals other than to control the phase” only pertains to the disclosed embodiment. That is no

reason to narrow the claims, however. [D.I. 94 at 29.] Samsung's proposal should, therefore, be rejected as unsupported.

F. "First and Second Control Signals Match"

The only real issue Samsung presents here is whether the term "match" means "the same." Samsung points to nothing to show how one of ordinary skill in the art would understand the term. [See D.I. 94 at 30.] Samsung does not even attempt to resort to extrinsic evidence, its usual refuge from contrary intrinsic evidence in defiance of *Phillips*. This is probably because even the extrinsic evidence demonstrates that "match" has a meaning broader than "the same." [See, e.g., D.I. 97, Ex. 2 at 714-15 (defining "match").] All Samsung cites for support is a passage from the specification where the inventors provided one example of "match" where two things are the same. [D.I. 94 at 30.] Samsung again fails to acknowledge, however, that there is no clear indication in the specification that the inventors intended to so limit their invention: a description of a particular is not a definition of the general.

G. "Clock Signal"

Samsung broadly acknowledges that a "clock signal" is a signal used for clocking or timing purposes but goes too far in limiting the signal to "a series of pulses used for synchronizing the data conversion circuit." [See D.I. 94 at 30-31.] In its usual way, Samsung cherry-picks certain dictionary definitions but fails to consider them in light of the specification as mandated by *Phillips*. Specifically, there is nothing in the specification, and certainly nothing in the portions to which Samsung cites, that limits "clock signal" to a "series of pulses used for synchronizing." Nowhere does the specification define "clock signal" in the narrow manner Samsung proposes.

Likewise, nothing in the specification narrowly defines this term as relating only to “the data conversion circuit” as Samsung proposes. Indeed, Samsung does not even present any argument to support its inclusion of such a limitation. Samsung’s proposal is simply an effort to improperly burden this straightforward term with limitations from the specification and the extrinsic evidence without proper justification. *Phillips*, 415 F.3d at 1323.

H. “Transfer Data Signal”

Samsung does not even try to construe this term; instead it just blatantly reads in limitations from the specification without explanation or justification. Indeed, although Samsung references various portions of the specification, [see D.I. 94 at 32-33], it never explains why those passages require that the claims be narrowed as it proposes. The Federal Circuit has repeatedly cautioned that reading limitations from the specification into the claim is a matter not to be taken lightly and Samsung offers no reason why the Court should do so here. *See, e.g., Phillips*, 415 F.3d at 1323. The Court should reject Samsung’s invitation to re-write the claims.

III. U.S. PATENT NO. 6,362,644: DISPUTED CLAIM TERMS

A. “Termination Signal” and “Programmable Termination”

So as to narrow certain issues for the Court, ON Semiconductor amends its proposed construction for these terms to make them consistent with its amendment, *infra*, to the term “terminate:”

ON Semiconductor	Samsung
programmable termination - an electrical circuit that can be configured to provide various levels or degrees for the dissipation or absorption of electrical energy <i>from a transmission line or other device</i>	The capability to configure the circuit to receive data signals from one of several available logic families
termination signal - a signal that dissipates or absorbs energy <i>from a transmission line or other device</i>	A signal that configures the circuit to receive data signals from one of several available logic families

1. “Programmable Termination”

Samsung’s proposed construction does not address the plain meaning of the disputed term and instead seeks to narrow the claim by reading in limitations from the specification. [See D.I. 94 at 35.] Samsung incorrectly asserts that the term has no ordinary meaning in the art despite clear proof otherwise. [*Id.*]

Samsung starts with an explanation of the reasons why certain signals may need to be terminated. [*Id.* at 33-35.] Samsung thereby demonstrates an understanding of transmission lines and the undesired effects of reflected signals that can be ameliorated by “‘terminat[ing]’ the line” to dissipate or absorb the energy of the reflected signal. [*Id.* at 33.] Samsung also acknowledges that “programmability” relates to “the ability to configure.” [*Id.* at 36.] Having acknowledged the common meaning of “termination” and “programmable,” it is puzzling that when it comes to construing the composite term “programmable termination,” Samsung asserts that it cannot be understood on its own and resorts to piling on limitations found only in the specification with no apparent justification. [*Id.* at 35-36.] This is improper.

Samsung’s proposed construction also violates the principles of claim differentiation. *Haliburton Energy Servs., Inc. v. M-I LLC*, 514 F.3d 1244, 1252 n.3 (Fed. Cir. 2008) (“[T]he presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation . . . is not present in the independent claim.”) (quoting *Phillips*, 415 F.3d at 1315). Here, the independent claims make no mention of “logic families,” though the narrower dependent Claim 14 does. [D.I. 97, Ex. 6 at col. 6:44-48.] There is no reason why the dependent claim should be rendered superfluous by importing the “logic families” limitation into the independent claims. See *Pfizer, Inc. v. Ranbaxy Labs.*, 457 F.3d 1284, 1292 (Fed. Cir. 2006) (“[R]eading an additional limitation from a dependent claim into an independent claim

would not only make that additional limitation superfluous, it might render the dependent claim invalid for failing to add a limitation to those recited in the independent claim.”).

2. “Terminating Signal”

As with the term “programmable termination,” Samsung attempts to improperly read in limitations from both the specification and from the dependent claims. Samsung references the example provided in the specification that a “terminating signal” can be voltages that serve to dissipate signals. [D.I. 94 at 36.] To stop there would lead to a proper construction for the disputed term as proposed by ON Semiconductor. Instead, Samsung goes on to read in additional limitations from the specification. This is particularly improper given that these additional limitations do not even come from the preferred embodiment but from a description of an *alternative* embodiment (i.e., an “alternative method”). [D.I. 94 at 37.] Yet again, a description of a particular is not a definition of the general.

B. “Third and Fourth Pins for Respectively Receiving First and Second Termination Signals”

Samsung discusses this phrase, not to identify any aspects of the constituent terms that cannot be understood, but to rewrite the claims. Samsung broadly discusses “pins,” “receiving,” “termination,” and “signals” without any real dispute as to their meaning such that the larger phrase is also understood. [D.I. 94 at 33-35.] In fact, most of the constituent terms are separately construed.

Samsung then goes on to assert that the larger phrase, “third and fourth pins for respectively receiving first and second termination signals,” cannot include power supply and ground pins, [D.I. 94 at 38], even though it earlier acknowledged the contrary teachings of the specification that “as shown in Figs. 1 and 5, the ‘termination signals’ are voltages (e.g., V_A and V_B),” [D.I. 94 at 36]. As voltages, V_A and V_B can be power supply pins, including ground pins

(i.e., a power supply pin with a voltage of zero). [D.I. 97, Ex. 6 at col. 2:25-33, 55-57.] Samsung goes further astray because its statement that “[s]uch programmability *cannot be accomplished* with predefined power supply and ground potentials” is contradicted by the fact that the voltages, V_A and V_B , provide the disclosed programmability using voltages that *can be* power supply and ground potentials. [Compare D.I. 94 at 38 with D.I. 97, Ex. 6 at col. 2:25-33.]

In addition, Samsung offers nothing to support its argument that explicitly claiming a power pin precludes the third or fourth pins from functioning as power supply pins. [D.I. 94 at 39.] There is no such limitation in the claims and none should be read into them as Samsung suggests. [See D.I. 97, Ex. 6 at col. 5:5-6:56.]

Contrary to Samsung’s suggestion, the prosecution history does not support its position. [D.I. 94 at 40-42.] The inventors claimed “third and fourth *pins* for respectively receiving first and second termination signals” and argued during prosecution that the use of “pins” was not disclosed in any of the cited references. [D.I. 94 at 40-41.] They argued that, whereas they had claimed “*pins*,” the prior art only disclosed “*internal nodes*” or “*lines*,” which are not “pins.” [D.I. 94 at 40-41.] For example, the inventors distinguished the claimed invention from the Gabara prior art by noting that it disclosed “*internal nodes* . . . not third and fourth *pins*.” [D.I. 97, Ex. 10 at 11; D.I. 94 at 40.] As to the Kubista prior art, the inventors noted that it disclosed “*lines* 16 and 18 [coupled] to power supply VCC or ground potential, not to third and fourth *pins*.” [D.I. 97, Ex. 10 at 11; D.I. 94 at 40.] They similarly distinguished the Decuir prior art on the basis that it disclosed a “transmission line or . . . power supply *node* . . . , not to a third or fourth *pin*.” [D.I. 97, Ex. 10 at 12; D.I. 94 at 41.] In each situation, the inventors distinguished their claims, which recited “third and fourth *pins*,” from the prior art that disclosed internal *nodes* or *lines*.

Having distinguished the prior art, the inventors' further remarks regarding the suitability of the claims were not made to distinguish the prior art, but to reiterate what is said in the specification as to the advantages of the claimed invention. [*Compare* D.I. 97, Ex. 10 at 11-12 *with* D.I. 94 at 40-41.] The inventors explained very precisely that, as a result of the claimed "pins," the claimed invention "*can*" terminate signals of a variety of logic families and has the "*flexibility*" to terminate signals from a variety of logic families. The inventors did not foreclose other possibilities and their statements did not disclaim or disavow claim scope.

At most, the prosecution history shows that the inventors distinguished their invention as having "pins" (i.e., external connections to a semiconductor chip) while the prior art disclosed only "internal nodes" or "lines" (i.e., connections within a semiconductor chip) of a circuit. It further shows that the claimed configuration can be used for different purposes, including terminating signals from a variety of logic families. ON Semiconductor's construction is consistent with the common meaning and scope of "pins" and properly excludes internal nodes on a die that were taught in the prior art. Samsung's proposal goes too far by reading in unnecessary limitations.

C. "First and Second Load Elements Are Coupled to Third and Fourth Pins of the Semiconductor Package to Provide a Programmable Termination"

Samsung discusses this term in conjunction with the term "third and fourth pins for respectively receiving first and second termination signals," [D.I. 94 at 36], and its proposed construction for this term should be rejected for the reasons discussed in section II.B., *supra*.

D. "Pin"

Whereas, for its other constructions, Samsung immediately resorts to reading in limitations from the specification in violation of *Phillips*, 415 F.3d at 1323, it encounters a

problem here because the specification provides nothing to read in. Samsung thus resorts to extrinsic evidence in the form of a cherry-picked dictionary definition that contradicts the specification – yet another *Phillips* violation. 415 F.3d at 1320-21.

The disclosed pins of the '644 patent⁸ are not shown as “small diameter metal rods,” as Samsung proposes. [D.I. 97 at Ex. 6 at Fig. 5.] They are shown as being more similar to surface mount pins that only have a metal tab to which connections are made by soldering. The specification also discusses metal balls, also called “pins” by those of ordinary skill in the art, in connection with ball grid arrays (BGAs) that are also outside of the extremely narrow scope of Samsung’s proposal. [D.I. 96 at 22-23.] Notably, in its product literature, Samsung itself refers to the balls of BGAs as “pins.” [D.I. 96 at 22-23.]

Samsung’s analysis also suffers from the fact that, in construing “pins,” it attempts to bring in other aspects of the claims, not for clarity, but as an opportunity to rewrite the claims. [D.I. 94 at 42-44.] Although every part of the claim should be given meaning, *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 950 (Fed. Cir. 2006), claim construction is not an opportunity to rewrite unambiguous claim language to be anything other than what it is. *See, e.g., Ortho-McNeil*, 2008 U.S. App. LEXIS 6786, at *8; *Chef America*, 358 F.3d at 1375.

E. “Coupled”

Once again Samsung fails to acknowledge that an example is just an example. All that Samsung’s citation to the specification serves to illustrate is that the inventors understood that a direct connection to be an example of “coupled.” But Samsung fails to show that the inventors intended to limit their invention to that one example. *See* section II.C., *supra*.

⁸ “The '644 patent” refers to U.S. Patent No. 6,362,644.

[D.I. 94 at 44-46.] As explained in ON Semiconductor’s Opening Brief, one of ordinary skill in the art would understand “coupled” to refer to both direct and indirect connections, [D.I. 96 at 22], and Samsung has not shown that the inventors intended to redefine the term in such an exquisitely narrow way. *See Sinorgchem*, 511 F.3d at 1136.

F. “Terminate”

To narrow the issues for the Court, ON Semiconductor amends its proposed construction by incorporating certain aspects of Samsung’s proposed construction:

ON Semiconductor	Samsung
to dissipate or absorb energy <i>from a transmission line or other device</i>	The use of a load at the end of <i>a transmission line or other device</i> whose impedance is matched to that of the line

The inventors taught that, in certain situations, the termination may be an impedance matched to a transmission line. [D.I. 97, Ex. 6 at col. 1:23-26.] In so doing, they also recognized that there may be situations where terminations may not be matched. Samsung’s proposal improperly includes “whose impedance is *matched* to that of the line” and is, therefore, contrary to the teachings of the specification. *See Phillips*, 415 F.3d at 1320-21.

Even the extrinsic evidence on which Samsung relies undermines its proposed construction and supports ON Semiconductor’s construction, which does not improperly limit “terminate” to perfectly matched terminations. [D.I. 94 at 46.] Samsung relies heavily on a definition from the *Academic Press Dictionary of Science and Technology*, which recites “[t]he use of a load at the end of a transmission line or other device whose impedance, *if matched to that of the line*, will create no reflections.” [D.I. 94 at 46.] This dictionary definition recognizes that the impedance may *not* be matched to that of the line by its use of the term “if,” in a similar way as the ’644 patent, that not all terminations need to be matched.

G. “Loading”

Samsung’s Opening Brief glosses over this term with three sentences after addressing “terminate.” [D.I. 94 at 47 (last paragraph).] In the first sentence, Samsung attempts to equate the terms “terminate” and “loading” simply by presenting similar sentence structure from distinct claims. Samsung never takes the next step to explain how similar sentence structure requires that different words be redefined to have identical meanings. [D.I. 94 at 46-47.] In the second sentence, Samsung identifies extrinsic evidence regarding the purported ordinary meaning of “loading” that has no connection to “terminate” [D.I. 94 at 47 (compare definitions for “terminate” and “loading”).] And in the third sentence, Samsung concludes that the first two disconnected sentences are the reason for similar constructions for “loading” and “terminate.” [*Id.*] None of this makes any sense, and Samsung’s proposed construction should be rejected for lack of a logically cogent or legally sound argument.

H. “Load Element”

Samsung purports to begin with the claims themselves to arrive at its proposed construction, [D.I. 94 at 48], but, in truth, continues with its logical error in proposing that a description of a particular is a definition of the general. Samsung ignores that the portion of the specification on which it relies to narrow the term does not even describe the primary method of practicing the invention but is “an alternative method.” [*Compare* D.I. 97, Ex. 6 at col. 4:46-49 *with* D.I. 94 at 48-49.] Samsung does not even attempt to explain how this “alternative method” serves to define the more general method as claimed or disclosed in the specification. *See* section III.A.2., *supra*. [*See* D.I. 94 at 48-49.] The inventors did not re-define a “load element” simply by discussing that a “load element” can be used as a “termination.”

Samsung also attempts to read in limitations, including “logic device transmission line to help reduce interconnect signal distortion,” by relying on the teaching that a termination element is typically chosen to equal the impedance of a transmission line. [See D.I. 94 at 48-49.] That, too, is wrong because, as was shown above, the termination need not be matched. See section III.F., *supra*. A limitation should only be read in from the specification in very limited circumstances – none of which are present here. *Phillips*, 415 F.3d at 1323. Samsung has failed to provide any basis for reading in these limitations here.

IV. **U.S. PATENT NO. 5,000,827: DISPUTED CLAIM TERMS**

A. **“Said Bumps Being of Substantially Uniform Height Across Said Substrate”**

1. The Preamble Phrase is Not a Limitation.

As demonstrated in ON Semiconductor’s Opening Brief, the preamble phrase merely recites the purpose of the invention, and the complete invention is recited in the claim body. [D.I. 96 at 40-41.] As a result, the preamble phrase is not a limitation.

Samsung does not dispute either point in its Opening Brief. To the contrary, Samsung implicitly concedes that the preamble merely recites the purpose, as Samsung acknowledges that “*the entire point* of the claimed method – and the ’827 patent⁹ – is to form ‘bumps’ of *substantially the same height*.” [D.I. 94 at 9.] Second, Samsung has no support for its conclusory argument that reading out the preamble would render the recited method meaningless. The preamble is not limiting because all of the steps for realizing the stated purpose are recited in the claim body, including the three essential steps of altering the opening, wafer height, and flow rate. [D.I. 97, Ex. 26 at col. 6:56-62 (steps (i), (j), and (k) of Claim 1).]

⁹ “The ’827 patent” refers to U.S. Patent No. 5,000,827.

2. The Applicants Did Not Rely on the Preamble to Distinguish Over the Cited Art.

Samsung mischaracterizes the prosecution history of the '827 patent to incorrectly assert that ON Semiconductor was “forced to [amend] [C]laim 1” to require “all of the [] altering steps [cup size, height, and flow rate]” because the cited art disclosed “providing uniform height of electrodeposition across the surface of the substrate.” [D.I. 94 at 6.] The applicants amended Claim 1 to overcome the objection that the claim improperly claimed steps in the alternative. [See D.I. 97, Ex. 28 at 2 (“With respect to [C]laim 6,¹⁰ the Examiner objects to the alternative expression ‘by one or more of the following.’ . . . [A]mended [C]laim 6 now recites that *all* of the above altering steps are used to control the ion concentration.”).] They did not rely on the preamble when distinguishing over the cited art, but instead emphasized the lack of disclosure of the three altering steps recited in the claim body:

As is clear from the above, none of the cited prior art references teach or suggest applicants’ claimed process for obtaining a substantially uniform height of electroplated material across the surface of the substrate *by controlling the metallic concentration of the electroplating fluid by (f) altering the size of an opening . . . , (g) altering the distance of the substrate from the container opening, and (k) altering the flow rate of the electroplating fluid through the container opening as recited in the applicants’ amended [C]laim 6.*

[See *id.* at 4-5.] Thus, because there was no clear reliance on the preamble to distinguish over prior art, the prosecution history does not require that the preamble phrase be construed as a claim limitation. *Symantec*, 2008 U.S. App. LEXIS 7826, at *22 (“Absent clear reliance on the preamble in the prosecution history, . . . the preamble generally is not limiting” and during

¹⁰ Claim 6 in the patent application issued as claim 1 of the '827 patent. [See D.I. 97, Ex. 28 (cancelling claims 1-5).]

prosecution, if the preamble was “not clearly added to overcome a rejection[], we do not construe it to be a separate limitation.”) (internal quotes omitted).

3. Alternatively, If the Court Finds That the Preamble Is a Limitation, It Should Adopt ON Semiconductor’s Construction.

If the Court were to find that the preamble is a limitation, the Court should construe it as “approximately the same distance between the top of the bump and the top surface of the substrate” for the reasons provided in ON Semiconductor’s Opening Brief. [D.I. 96 at 41-43.]

B. “Metallization Bumps”

The dispute concerning this term centers around whether “metallization bumps” should be construed as “a non-planar accumulation of a metal layer or layers,” as ON Semiconductor contends, or as a “small mound of metal,” as Samsung contends.

As demonstrated in its Opening Brief, ON Semiconductor’s construction is rooted in the intrinsic evidence. The specification and prosecution history show that the metallization bumps are formed from the deposition of a metallization layer or layers. The patent also makes clear that this deposition is “non-planar” by distinguishing between the metallization bumps and the metallization layers that form a “planar” top layer 19. [See D.I. 96 at 43-45.]

By contrast, Samsung bases its construction on a definition from the *Modern Dictionary of Electronics* to define “bump” as a “small mound.” [See D.I. 97, Ex. 3 at 121.] Samsung’s reliance on this dictionary definition is improper because it is contrary to the specification’s instruction that the invention “is not intended to be limited to implementations such as the [mound shaped bump] shown in Figure 3 and 4.” [D.I. 97, Ex. 26 at col. 1:56-60.] As a result, Samsung’s construction is not correct.

C. “Altering the Flow Rate of Said Solution Through Said Opening”

ON Semiconductor has slightly modified its original construction from “changing” to “adjusting” so that ON Semiconductor’s construction now reads:

ON Semiconductor	Samsung
Adjusting the volume of electroplating solution flowing per unit of time flowing out of the opening	Changing the volume of electroplating solution per unit of time through the opening of the solution container during the formation of the metallic bumps to control their growth in a predetermined region of the substrate

Samsung not only attempts to incorporate limitations into this claim term that are recited elsewhere, but it now appears to propose that the flow rate is changing *during* formation of the metallized bumps. [D.I. 94 at 10-11.] There is no support for this construction.

1. The Specification Shows That the Flow Rate Is Not Changing but Adjusted to a Fixed, Optimal Level.

Samsung’s construction is wrong because it is contrary to the specification, which shows that the term “altering” is used in the sense that the parameters of (i) flow rate, (ii) the wafer height relative to the cup lip, and (iii) the diameter of cup opening relative to the wafer diameter should be set to an optimal value during the plating process. Indeed, with regard to the flow rate, the patent describes that “the flow rate of solution through the plating cup is optimized” and that the optimal flow rate of one embodiment is between “4 to 5 liters/minute.”¹¹

¹¹ Similarly, for the other parameters, the patent describes that (i) “the wafer is suspended at an optimum height above the cup lip,” and (ii) “the cup diameter is optimized relative to the wafer diameter” [D.I. 97, Ex. 26 at col. 2:66-68.] Thus, for these parameters, the patent describes that an optimal height “H of wafer 3 above the lip 23 of cup 20 [is] at 2.25 millimeters” and an optimal relative diameter is “9.65 centimeters [for the wafer], and the inside diameter of the cup [is] 8.89 centimeters.” [*Id.* at col. 5:27-30, 50-54.]

[D.I. 97, Ex. 26 at col. 5:44-45.] Clearly, the patent discloses that the flow rate is constant and not changing during the plating process but can be adjusted at other times.

2. Samsung Has No Support for Its Construction.

Contrary to Samsung's assertion, the claim language does not support its construction. The claim language, "altering the metallic ion concentration of the electroplating solution," does not require that the flow rate be changing during bump formation. Samsung's contention that the claim requires that the *ion concentration* is "changing" is wrong. [D.I. 94 at 10-11.] Indeed, as with the flow rate, the specification teaches that the ion concentration is set to an optimum concentration level during bump formation and does not need to be changing while the plating is in progress. [See D.I. 97, Ex. 26 at col. 3:3-8 ("By optimizing the above-mentioned parameters, *the metallic ion concentration* of the electroplating solution in the vicinity of the wafer edge(s) *is optimized* to offset the 'edge effect,' and to provide substantial uniform height of electroplated bumps across the wafer diameter.").]

Nor does the prosecution history support Samsung's construction. The applicants did not distinguish their invention from the prior art, as Samsung suggests, based on a claim requirement that the flow rate to be changing during bump formation. [D.I. 94 at 11.] To the contrary, the applicants conceded that a cited reference (JP 198,017) taught using a constant flow rate above 30cc/cm²/min disclosed the step of "altering the flow rate" but distinguished their invention on other grounds. [See D.I. 97, Ex. 28 at 3.]

And, finally, the specification does not help Samsung's construction. Samsung contends that the flow rate is changing because the specification shows the "solution is pumped over the substrate" and the "pump is pumping." [D.I. 94 at 11.] That contention is wrong given

that the specification describes a *constant* flow rate between “4 to 5 liters/minute” as the preferred flow rate. [D.I. 97, Ex. 26 at col. 5:44-45.]

V. U.S. PATENT NO. 5,252,177: DISPUTED CLAIM TERMS

A. “Removing Said Photoresist Pattern Positioned on Said Insulation Layer by Plasma Etching Simultaneously Forming a Protective Oxide Layer” (Claim 1); and “Removing Remaining Photoresist Positioned on Said Insulation Layer by Plasma Ashing to Simultaneously Form a Protective Oxide Layer” (Claim 8)

1. “Removing Said Photoresist Pattern” (Claim 1) and “Removing Remaining Photoresist” (Claim 8)

So as to narrow the issues for the Court, ON Semiconductor amends its proposed construction for these terms as follows:

ON Semiconductor	Samsung
Claim 1: “getting rid of the photoresist pattern.” Claim 8: “getting rid of the remaining photoresist.”	The meaning of this phrase does not require construction. To the extent a construction is necessary, the phrase should be construed as “removing photoresist.”

ON Semiconductor has modified its constructions so that they read “getting rid of the photoresist” and “getting rid of the remaining photoresist,” instead of requiring that “all” of the photoresist be removed as in the original constructions. In its Opening Brief, Samsung objected to ON Semiconductor’s constructions because the constructions included the requirement that “all” of the photoresist be removed. Although the ordinary meaning of the claim language recites “removing remaining” photoresist in the case of Claim 8, ON Semiconductor agrees to modify its construction so that it no longer recites that “all” photoresist must be removed. As it now appears that Samsung has no basis to object to ON

Semiconductor's constructions, which reflect the ordinary meaning of the claim language, ON requests that the Court adopt of its constructions.

2. "Plasma Etching" and "Plasma Ashing"

ON Semiconductor's constructions reflect how these distinct plasma processes are used to remove material, as expressly recited in the claims, i.e., "*etching*" v. "*ashing*." ON Semiconductor's constructions reflect this distinction, based on the intrinsic and extrinsic evidence, and do not read in limitations from the specification, as Samsung incorrectly alleges. *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1248 (Fed. Cir. 1998) (differentiating reading in limitations from specification from "look[ing] to the written description to define a term already in a claim limitation, for a claim must be read in view of the specification of which it is a part").

The specification and authoritative sources on plasma processing both show that plasma etching and plasma ashing are different processes. Plasma etching generally refers to selective etching, as shown by its use in the patent, to form a contact hole or pattern a conductive layer, and the removal process is characterized by the acceleration of ions for ion bombardment. [See, e.g., D.I. 97, Ex. 37 at col. 1:31-33 ("Then, a contact hole 15 is formed through selective etching of the third insulation layer 13"), 2:4-7 ("On the third conductive layer of aluminum, an overlying layer wiring 17 is disposed by formation of a pattern and selective etching."); see also D.I. 97, Ex. 3 at 754 (defining "plasma etching" as "an etching process using a cloud of ionized gas as the etchant"); D.I. 97, Ex. 51 at 16-17 ("The second features that makes plasma discharges so useful is their ability to generate ions and to accelerate the ions to energies of 50-1000 eV in the vicinity of the . . . etching substrate.").] With ion bombardment, plasma

etching is, therefore, like sand blasting where sand (like ions) is accelerated toward a target to knock off pieces of the target material.

On the other hand, plasma ashing is used to remove photoresist made of organic material (i.e., a carbon/hydrogen-based plastic film) [see D.I. 96 at 58-59], through a chemically reactive process with oxygen called oxidation. [D.I. 97, Ex. 37 at col. 2:61-3:1 (“[O]xygen plasma ashing is performed to remove a remaining photoresist . . . and simultaneously the exposed wiring surface . . . *is oxidized* . . .”); see also D.I. 97, Ex. 47 at 352-55; D.I. 97, Ex. 42 at 211.] Thus, plasma ashing is more like burning wood (hence, the term “ashing”). Ashing, just like burning, is a chemical reaction of an organic material (e.g., wood or photoresist) with oxygen. Plasma etching and plasma ashing are two very different ways of removing material.

Samsung, however, asks that the Court read out any differences between these claim terms, contending that “plasma ashing” is merely “plasma etching designed for removal of a photoresist.” That approach ignores that the applicants distinguished that the two processes by amending “plasma ashing” to “plasma etching” to claim what the applicants characterized as being alternative inventions. [See D.I. 96 at 51 (citing Exs. 49 and 50).] Samsung’s constructions thus are inconsistent with the entirety of the evidence, including the claim language, the specification, the prosecution history, and authoritative sources on plasma processing.

3. “Simultaneous Form” and “Simultaneously Forming”

Samsung seeks a construction where the protective oxide layer is formed “*as part* of the plasma ashing / plasma etching” so as to cover formation of the protective oxide layer during preparatory steps such as during introduction of oxygen gas in the chamber, which can occur before photoresist is being removed. [See D.I. 94 at 57.] As shown in ON

Semiconductor's Opening Brief, this is contrary to the ordinary meaning of the claim and its usage in the specification and should be rejected. [See D.I. 96 at 52-53.]

4. "Protective Oxide Layer"

After further analysis, ON Semiconductor modifies its construction so as to more properly reflect the true scope of the claims. ON Semiconductor proposes that the proper construction should be:

ON Semiconductor	Samsung
An oxide layer of at least 30Å thickness that functions to prevent damage to an underlying layer during subsequent processing.	An oxide layer sufficient to prevent damage to an underlying layer.

- a. The Construction Should Reflect the Disclaimer of an "Ordinary" Oxide Layer Found in the Intrinsic Evidence.

ON Semiconductor's construction reflects the proper scope of the claims in view of the distinction made in the patent and prosecution history between the prior art oxide layer and the claimed "*protective* oxide layer."

First, as described in ON Semiconductor's Opening Brief, the conventional process described in the Background section of the '177 patent¹² includes steps that form an oxide layer during the removal of a photoresist, including the same steps that are described as being part of the invention of the '177 patent. [D.I. 97, Ex. 37 at col. 1:51-53 ("plasma ashing: process of . . . removing the photoresist remaining after plasma etching process"); see also, D.I. 96 at 54-55.]

Second, notwithstanding that the prior art method also forms an oxide layer, the patent describes that the underlying wiring formed by the prior art method was prone to

¹² "The '177 patent" refers to U.S. Patent No. 5,252,177.

becoming damaged during formation of a multilayer interconnect because the underlying wiring could become exposed to organic solvents and water during subsequent processing. [D.I. 97, Ex. 37 at col. 1:50-64.] The inventors purported to have solved this problem by forming a “protective” oxide layer that functions to “prevent reaction between the wiring, an organic solvent, and water in subsequent processing.” [*Id.* at col. 3:3-5.] Thus, the patent disclaims the “ordinary” oxide layer and describes that a “protective” oxide layer with sufficient thickness, which the patent shows must be at least 30 Å, can provide the necessary protection. [*Id.* at col. 3:1-2.]

The prosecution history confirms the distinction that the patent makes between the claimed “protective oxide layer” and the ordinary oxide layer formed by the prior art method. During prosecution, the applicants amended their claim to recite a “protective oxide layer” whereas the claim originally recited only an “oxide layer.” [D.I. 97, Ex. 49 at 7.] This amendment shows that the claim is not intended to encompass an oxide layer that is not protective, i.e., an oxide layer less than 30 Å.¹³

Samsung’s contention that ON Semiconductor reads in limitations from the specification into the claim is incorrect. Rather, the totality of the intrinsic evidence, the patent

¹³ Although dependent claims 4 and 14 recite that the protective oxide layer should have a thickness of 30 Å to 80 Å, the dependent claims and ON Semiconductor’s proposed construction would not result in identical scope between the independent and dependent claims. The thickness of the protective oxide layer in the independent claims would be limited to at least 30 Å, whereas the dependent claims recite an upper limit of 80 Å. In any event, even if the Court were to find that the claims overlap somewhat in scope, the presumption of claim differentiation is inapplicable here since the construction reflects the distinction that the applicants made between the alleged invention and the prior art. *See Fantasy Sports Props., Inc. v. Sportsline.com, Inc.*, 287 F.3d 1108, 1115-16 (Fed. Cir. 2002) (“[A]ny presumption arising from the doctrine of claim differentiation [is] overcome by the [distinction between the prior art and the invention described in the] written description and prosecution history.”).

specification and prosecution history, show that the inventors disclaimed an oxide layer of less than 30 Å because it was not “protective.” The claims should not encompass what was disclaimed. *See SafeTCare Mfg., Inc. v. Tele-Made, Inc.*, 497 F.3d 1262, 1269-70 (Fed. Cir. 2007) (examining the specification “to understand what the patentee has claimed and disclaimed” and finding that because “the written description repeatedly emphasizes that the motor of the patented invention applies a pushing force, not a pulling force, against the lift dog . . . Thus, we are persuaded . . . that the invention disclaims motors that use pulling forces against lift dogs.”) (citing *Phillips*, 415 F.3d 1303).

b. The “Protective Oxide Layer” Functions to Prevent Damage.

Further, the construction of “protective oxide layer” should also reflect that it “functions to prevent damage to an underlying layer.” This is supported by the ordinary meaning of “protective.” [See D.I. 95, Ex. Z at 1823 (“protective: something that serves for protection.”).] The specification also confirms this ordinary meaning because it describes that the protective oxide layer serves the function of “*prevent[ing] reaction* between the wiring, and organic solvent and water in subsequent processing . . . [b]ecause of the above result, *the wiring is protected and not damaged.*” [D.I. 97, Ex. 37 at col. 3:3-8.] Samsung, in contrast, seeks to distort this ordinary meaning by asserting that it should only be “sufficient to protect.”¹⁴

¹⁴ Indeed, Samsung’s originally proffered construction was more in line with the ordinary meaning as it asserted that “protective oxide layer” should mean a layer “created for the purpose of preventing damage.” [D.I. 84 at 8.] It is clear now that Samsung has backed away from the ordinary meaning so that the claim would read on ordinary oxide layers formed as by-products that are not desired, and do not function to prevent damage.

B. “Removing Said Oxide Layer Before Forming a Second Conductive Layer on Said Exposed Top Surface of Said First Conductive Layer”

Samsung’s assertion that ON Semiconductor’s construction limits the term to the preferred embodiment is incorrect. [D.I. 94 at 60.] ON Semiconductor’s construction is based on the ordinary meaning of the claims, the description in the specification, and numerous references in the technical field that support complete removal of the oxide layer during the formation of multilayer interconnects. This is an entirely proper approach to interpreting disputed claim language.¹⁵ *See generally, Phillips*, 415 F.3d at 1313-20 (noting “we must look at the ordinary meaning in the context of the written description and the prosecution history,” and describing the value of extrinsic evidence as “shed[ding] useful light on the relevant art”).

In contrast, Samsung’s construction would read out the claim limitation “exposed top surface” of the first conductive layer. Samsung states that the top surface does not have to be exposed but can remain covered with some amount of the protective oxide layer after the removing step is performed. [D.I. 94 at 59-60.] As explained above, this assertion cannot be squared with the express language of the claim. Moreover, as discussed above, the specification and the technical literature in the field all support construing this claim term to require complete removal. [See D.I. 96 at 56-58.] Samsung’s position is clearly improper. *See Texas Instruments Inc. v. U.S. Int’l Trade Comm’n*, 988 F.2d 1165, 1171 (Fed. Cir. 1993) (“To construe the claims in the manner suggested [by the patentee] would read an express limitation out of the claims.

¹⁵ Samsung’s reliance on *Conoco, Inc. v. Energy & Envtl. Int’l, L.C.*, 460 F.3d 1349, 1360-61 (Fed. Cir. 2006) is misplaced. That case involved the issue of whether the claim should exclude impurities from the use of the transitional phrase “consisting of.” The Court held that if an impurity is added unrelated to the invention, a competitor cannot escape infringement. The situation here is much different. The removal of the entire oxide layer is one of the direct steps of the invention and is required by the express language of the claim limitation; it is not based on a transitional phrase.

This we will not do because ‘courts can neither broaden nor narrow claims to give the patentee something different than what he has set forth.’”).

C. “Photoresist”

ON Semiconductor’s construction flows directly from the claim requirements, and does not read in limitations from the specification as Samsung contends. *Pitney Bowes*, 182 F.3d at 1305 (“The starting point for any claim construction must be the claims themselves.”). As mentioned above with regard to the construction for “plasma ashing,” the claim expressly requires that plasma ashing be undertaken to form a “protective oxide layer,” which requires that the plasma ashing use an oxygen plasma and that the photoresist be an organic material. *See* section V.A.2., *supra*. Thus, the proper construction of this term includes (1) only those photoresists made of organic materials and (2) only those that can be removed through an oxygen plasma. Moreover, a photoresist made of an inorganic material would not be removable by the claimed plasma ash process and would render the claim inoperable. *See Digital Biometrics, Inc. v. Identix, Inc.*, 149 F.3d 1335, 1344 (Fed. Cir. 1998) (“[I]f the claim is susceptible to a broader and a narrower meaning, and the narrower one is clearly supported by the intrinsic evidence while the broader one raises questions of enablement under § 112, P 1, we will adopt the narrower of the two.”).

D. “Expose a Top Surface of Said Conductive Layer” and “Exposed Top Surface”

Again, ON Semiconductor’s construction naturally follows from the ordinary meaning of the claim language and the claim requirements. Samsung’s unsupported refrain that ON Semiconductor’s construction limits the invention to the preferred embodiment is incorrect.

In the claims, it is clear that when the claim recites to form a contact hole by selectively etching out the insulation layer to “expose a top surface of said first conductive

layer,” or to remove the protective oxide layer before forming the second conductive layer on the “exposed top surface” of the first conductive layer, it means that the top surface of the conductive layer is bare and, so, unoxidized. [D.I. 97, Ex. 37 at col. 3:48-4:4, 4:24-40 (claims 1 and 8); *see also* Ex. 53 at 364 (defining “expose” as “to make bare”).] Moreover, the oxide layer is an insulator and the first conductive layer would not be “exposed,” as the claim requires, if the conductive layer were oxidized. *See Apple Computer, Inc. v. Articulate Sys., Inc.*, 234 F.3d 14, 25 (Fed. Cir. 2000) (“each claim is an entity that must be considered as a whole”). [D.I. 97, Ex. 37 at 3:2-3 (“The aluminum oxide layer 35, an insulation layer . . .”).]

ON Semiconductor’s construction also is consistent with the specification, which describes that the wiring is bare prior to the plasma ashing step but is oxidized during plasma ashing to form an aluminum oxide layer. [*Id.* at col. 2:58-3:2 (“The wiring is composed of the second conductive layer, and another wiring layer are contacted through the contact hole 33” and after describing the plasma ashing step states that “simultaneously the exposed wiring surface though the contact hole 33 is oxidized, thereby forming aluminum oxide layer...”), 2:50-3:14, 3:2-21.]

Additionally, it is clear that the step “to expose a top surface of the conductive layer” is performed by the etching step because the claim recites that it is exposed by “selective etching.” [*See id.* at col. 4:30-33 (“forming a contact hole by *selectively etching* out exposed regions of said insulation layer *to expose a top surface of said first conductive layer.*”).] Hence, ON Semiconductor’s construction reciting that the conductive layer is “uncovered by the etching step” is the correct one.

CONCLUSION

For the foregoing reasons, ON Semiconductor respectfully requests that its proposed constructions be adopted and Samsung's constructions be rejected.

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April 28, 2008

CERTIFICATE OF SERVICE

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EXHIBIT 53

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explode • expository

explode *verb*

1. To release or cause to release energy suddenly and violently, especially with a loud noise : blast, blow¹ (up), burst, detonate, fire, fulminate, go off, touch off. *See* EXPLOSION. **2.** To come open or fly apart suddenly and violently, as from internal pressure : blow¹ (out), burst, pop¹. *Slang:* bust. *See* EXPLOSION. **3.** To become manifest suddenly and in full force : break out, burst (forth or out), erupt, flare (up). *See* EXPLOSION, START. **4.** To be or become angry : anger, blow up, boil over, bristle, burn, flare up, foam, fume, rage, seethe. *Informal:* steam. *Idioms:* blow a fuse, blow a gasket, blow one's stack (or top), breathe fire, fly off the handle, get hot under the collar, hit the ceiling (or roof), lose one's temper, see red. *See* FEELINGS. **5.** To increase or expand suddenly, rapidly, or without control : mushroom, snowball. *See* INCREASE. **6.** To cause to be no longer believed or valued : debunk, deflate, discredit, puncture. *Informal:* shoot down. *Idioms:* knock the bottom out of, shoot full of holes. *See* VALUE.

exploit *noun*

A great or heroic deed : achievement, feat, gest, masterstroke, stunt, tour de force. *See* ACTION.

exploit *verb* **1.** To put into action or use : actuate, apply, employ, exercise, implement, practice, use, utilize. *Idioms:* avail oneself of, bring into play, bring to bear, make use of, put into practice, put to use. *See* USED. **2.** To take advantage of unfairly : abuse, impose, presume, use. *See* TREAT WELL. **3.** To control to one's own advantage by artful or indirect means : maneuver, manipulate, play. *See* CONTROL, STRAIGHT.

exploitable *adjective*

Easily imposed on or tricked : credulous, dupable, easy, gullible, naive, susceptible. *See* WISE.

exploration *noun*

The act or an instance of exploring or investigating : investigation, probe, reconnaissance. *See* INVESTIGATE.

explore *verb*

To go into or through for the purpose of making discoveries or acquiring information : delve, dig, inquire, investigate, look into, probe, reconnoiter, scout¹. *See* INVESTIGATE.

explosion *noun*

1. A violent release of confined energy, usually accompanied by a loud sound and shock waves : blast, blowout, blowup, burst, detona-

tion, fulmination. *See* EXPLOSION. **2.** The act of emerging violently from limits or restraints : eruption, outbreak, outburst. *See* EXPLOSION. **3.** A sudden sharp, explosive noise : bang, bark, clap, crack, pop¹, rat-a-tat-tat, report, snap. *See* SOUNDS. **4.** A sudden violent expression, as of emotion : access, blowup, burst, eruption, fit², flare-up, gust, outbreak, outburst. *See* EXPLOSION.

expose *verb*

1. To lay open, as to something undesirable or injurious : subject. *Idiom:* open the door to. *See* PROTECTION. **2.** To make visible; bring to view : bare, disclose, display, reveal, show, unclothe, uncover, unmask, unveil. *Archaic:* discover. *Idioms:* bring to light, lay open, make plain. *See* SHOW. **3.** To make bare : bare, denude, disrobe, divest, strip¹, uncover. *See* PUT ON. **4.** To make a public and usually ostentatious show of : brandish, display, disport, exhibit, flash, flaunt, parade, show (off), sport. *See* SHOW. **5.** To disclose in a breach of confidence : betray, blab, divulge, give away, let out, reveal, tell, uncover, unveil. *Informal:* spill. *Archaic:* discover. *Idioms:* let slip, let the cat out of the bag, spill the beans, tell all. *See* SHOW.

exposé *noun*

Something disclosed, especially something not previously known or realized : apocalypse, disclosure, exposure, revelation. *Informal:* eye opener. *See* SHOW.

exposed *adjective*

Having no protecting or concealing cover : open, uncovered, unprotected. *See* PROTECTION.

exposition *noun*

1. Something that serves to explain or clarify : clarification, construction, decipherment, elucidation, exegesis, explanation, explication, illumination, illustration, interpretation. *Archaic:* enucleation. *See* EXPLAIN. **2.** A large public display, as of goods or works of art : exhibit, exhibition, show. *See* SHOW.

expositive *adjective*

Serving to explain : elucidative, exegetic, explanative, explanatory, explicative, expository, hermeneutic, hermeneutical, illustrative, interpretative, interpretive. *See* EXPLAIN.

expository *adjective*

Serving to explain : elucidative, exegetic, explanative, explanatory, explicative, expositive, hermeneutic, hermeneutical, illustrative, interpretative, interpretive. *See* EXPLAIN.